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ABSTRACT

The Public Schools of Brookline, Massachusetts are operating a pilot program to assist families during the first five years of a child's life. The multidisciplinary program, entitled the Brookline Early Education Project (BEEP), aims to help each child obtain optimal physical, social, emotional, and intellectual development. The program begins at the child's birth and includes both diagnostic and education services throughout the preschool years. This paper focuses on the assessment of children when they enter kindergarten in the area of health, general cognition, specific cognition, social skills and executive skills. Procedures pilot tested to measure these skills were the Pediatric Examination of Educational Readiness, the McCarthy Scales of Children's Abilities, the Meeting Street Screening Test, the Executive and Social Skills Profile, and the General Competence Rating Scale. (Author/BJG)

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A COMPREHENSIVE APPROACH TO EVALUATING EDUCATIONAL PROGRESS

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Introduction

The Public Schools of Brookline, Massachusetts are operating a pilot program to assist families during the first five years of a child's life. The multidisciplinary program, entitled the Brookline Early Education Project (BEEP), aims to help each child obtain optimal physical, social, emotional and intellectual development. The program begins at the child's birth and includes both diagnostic and education services throughout the preschool years.

The purpose of the diagnostic services is to insure that no child progresses through the preschool years with an undetected handicap to learning. Free exams are administered at regular intervals by a BEEP pediatrician, nurse and psychologist. The exams include physical and neurologic evaluation, auditory screening, vision screening, perceptual-motor development, and assessment of language, cognition and social-emotional development. The BEEP staff work closely with the family pediatrician or health center to insure proper follow-up to any findings which require further attention.

The purpose of the education services is to help each child experience the best possible beginning in life by increasing parent understanding of child development and by providing resources, support and encouragement to the parents in their role as teachers of the young child. The free program includes home visits, toy and book lending libraries, a supervised playroom and transportation to and from the BEEP center.

Two hundred seventy families, with children born in 1973 and 1974, are now participating in the program. The children will enter kindergarten in 1978 and 1979.

This paper describes one aspect of our preliminary work in becoming prepared to determine the benefits of BEEP as children enter kindergarten.

The Evaluation Design

The results of the Brookline Early Education Project will be evaluated through four areas of investigation:

- Child Outcomes - at age 14½ months, age 30 months, entry into kindergarten, and second grade
- Other Outcomes - including effects on the family, school, medical community, and community at large
- Process Analysis-including extensive documentation of the operation and and adaptation of systems for delivering services
- Cost Analysis - including reporting on the expense and feasibility of three alternative levels of program intensity.

This paper focuses on one aspect of the Child Outcomes component -- the assessment of children's development when they enter kindergarten.

In order to determine the relative benefits of the BEEP program we needed a comparable group of children who did not experience the program. However, random assignment of a control group was not feasible because our volunteer sample nearly exhausted the eligible population and we felt exclusion would raise too many ethical and political concerns in the community. We therefore decided to collect data on comparable groups of older children for three years prior to entry of the BEEP groups into kindergarten. In so doing we sacrifice the rigor of a randomized control group, but by testing for several years we should gain some insight into changes due to extraneous factors over time and changes due to BEEP.

Data collection on the first comparison group will take place during the summer of 1975. The timeline for testing is as follows:

Group		Date of Testing
First Comparison Group	Born in 1970 --	Summer, 1975
Second Comparison Group	Born in 1971 --	Summer, 1976
Third Comparison Group	Born in 1972 --	Summer, 1977
First BEEP Group	Born in 1973 --	Summer, 1978
Second BEEP Group	Born in 1974 --	Summer, 1979

Developing the Instruments

The first step in selecting instruments was to identify the areas in which we expected the BEEP program to have an impact, from reviewing our goals and program content, we identified five areas:

- Health
- General Cognition
- Specific Cognition
- Social Skills
- Executive Skills

We then invited a number of consultants to respond to the question: "If you were going to examine BEEP children to determine the program impact, what instruments would you use in each of these areas?" We also asked teachers to describe behaviors they deemed critical for "competent classroom functioning," particularly in open classroom environments.

From these contacts a number of instruments were nominated and we decided to pilot test the procedures listed below.

Area	Procedure	Description
Health	Pediatric Examination of Educational Readiness	Assessment of Physical Condition, Neuro-Developmental Function, and Attention-Adaptability, (York and Levine, 1975)
General Cognition	McCarthy Scales of Children's Abilities	Index of general intellectu level which renders subte scores conducive to insights about each child's strengths and weaknesses.
Specific Cognition	Meeting Street Screening Test	A short diagnostic instrume of psychoneurological efficiency for screening learning disabled childre
Social Skills	Executive and Social Skills Profile	A broad based observational instrument assessing task mastery skills and social behavior in the classroom setting.
Executive Skills	General Competence Rating Scale	A teacher checklist companion to the E.S.S.P.

Sample Selection

In preparation for selecting children for the pilot study, teachers of seven available kindergarten classrooms in Brookline attended a series of workshops in which various aspects of learning and school functioning were discussed. A common orientation toward educational competence was developed and teachers were then asked to rank order the children in their class on overall competence as formulated in the workshop sessions.

Once each class had been ranked, we selected the top five and bottom from each class for inclusion in the pilot testing. We selected the extremes for two reasons. First, we were particularly interested in determining how well the instruments discriminated children ranked as relatively competent from those ranked as relatively incompetent. Second, we were interested in learning whether the test instruments were subject to either floor effects or ceiling effects with our sample.

Description of Data

We report in this section on the analysis of the Spring 1974 pilot test data obtained from the Meeting Street Screening Test, the McCarthy Scales of Children's Abilities, the Executive and Social Skills Profile, and the General Competence Rating Scale. The analysis of the Pediatric Examination for Educational Readiness data is reported in a companion paper (York and Levine, 1975). A list of various subtests and scales for the instruments reported here is presented in Figure 1.

For the Meeting Street Screening Test, and the McCarthy Scales, we have data on 64 children selected from seven kindergarten classrooms. The Executive and Social Skills Profile and the General Competence Rating Scale were administered to a subsample of this group -- 32 children in three classrooms.

Data Analysis Plan

A major interest of this particular pilot study was to assess empirically the validity of these measures as indicators of child competence in the Brookline Schools. In particular, if these measures are relevant for our purposes, they ought to discriminate effectively between competent and non-competent children as reviewed in our school system. To examine this question, we analyzed each subtest score, scale score, observational variable, and rating score with a two way Analysis of Variance design consisting of the Teacher Competence Rating of each child (2 categories) crossed with classroom (3 or 7 categories depending upon the particular measure). Because the data were slightly unbalanced, cell n ranging from 3 to 5, we utilized an unweighted means solution (Searle, 1971).

We chose the classroom variable as a blocking factor in the analysis design for two reasons. First, there was a concern for possible bias resulting from social class differences across schools, and differences in educational philosoph and classroom practice across teachers. Second, the classroom variable is of interest in itself. The magnitude of the interaction of classroom with the Teacher Competence Rating should reflect at the very least the extent to which judgments of competence are based in the context of a particular classroom and are not endemic to the school system.

An alternative analysis strategy would have been to submit the entire data set, or instrument by instrument to a classical discriminant analysis and subject classification schema (e.g. Tatsuoka, 1971). The data set, particularly the observational data, has too few subjects to permit this type of analysis. We recognize the limitations of our analysis but believe it is adequate for the exploratory nature of the study.

In addition to the discriminating power of each instrument, we were also concerned about possible floor or ceiling effects with these measures when applied to our population. We examined these issues by simply looking at the score frequency distributions for each variable.

Results

We present in Figure 2, 3, 4, and 5 a summary of results from the analyses of variance. The means for the competent and noncompetent group on each variable are presented. The mean square error, the percentage of the sum of squares attributable to each factor, and the statistical significance of each factor are also charted.

On the Meeting Street Screening Test (MSST) we found significant differences at the .05 level between the competent and noncompetent groups on all three scale scores. To judge the discriminating power of these scales, a useful comparison statistic is the percentage of the total sum of squares in the scales scores which is attributable to the competence dimension. This is formally equivalant to the multiple correlation squared in traditional regression analysis. For the motor patterning, the visual perceptual motor, and the languag scales on the MSST the percentage of the sum of squares explained by the competen classification were 25.3%, 25.7%, and 16.6% respectively. Clearly, each of these scales is discriminating in a meaningful way between competent and noncompetent children in the Brookline Schools.

Further, neither the classroom factor nor the classroom by competence interaction were statistically significant for any of the three scales. This suggests that, at least along the dimensions that these scales tap, the definition of competence does not appear to be classroom specific. Finally, there were no indications of ceiling or floor effects on any of the three scales.

As for the McCarthy Scale, we found significant differences between children rated competent and noncompetent on all six of the index scores. We also found significant differences at the .05 level on 11 of the 20 subtests of the McCarthy In terms of the percentage of the sum of squares explained, the strongest discriminating variables were the perceptual performance index (34.7%), the general cognitive index (26.2%), the puzzle solving subtest (25.5%), and the opposite analogies subtest (22.2%). Both in terms of the scale scores, and the individual subtests, the McCarthy appears to be at least as good a discriminator as the MSST between children rated competent and noncompetent.

In terms of classroom effects, we found only one significant difference - th counting, sorting subtest. Similarily there was only one significant difference for the classroom by competence interaction - the conceptual grouping subtest. Considering that we are performing numerous tests of significance, these findings are not particularly troublesome. We would expect at lease as many significant findings on the basis of chance alone.

Only 4 of the 20 subtests showed signs of ceiling effects (see figure 6). No ceiling effects appeared on any of the index scores. No floor effects were found on any subtest or index. Since our primary interest would be the index scores, these results are quite adequate for our purposes. In general, the distribution of the index scores appears well behaved. The variability is somewhat greater than predicted on the basis of the standardized norming sample (s.d.=10 for all indices except the general cognitive where s.d.=16). This is to be expected, however, considering the procedure utilized in drawing our sample.

The results for the Executive and Social Skills Profile (ESSP) are also interesting. Figure 4 indicates an extensive pattern of significant findings on the first five of the seven profiles in the ESSP. Further, the percentage of the sum of squares explained by the competence factor suggest some powerful discriminating variables - % successful resists social controls (48.82%), % successful social control of peers (44.33%), rate of successful coping strategies (2 .22%), % of tasks completed successfully (35.70%), and % of time distracted (25.50%). Considering the observational nature of the data, these are impressive findings. The lack of significant findings on profiles 6 and 7 were anticipated (Bronson, 1975). Profile 6 focuses on adult-child interactions. Any observed differences here would be more a matter of teacher style rather than individual child characteristics. A similar argument can be made for profile 7 which attempts to assess the affect level in the classroom. Obtaining high inter-observer reliability on the profile 7 also appears problematic. (See Bronson, 1975, AERA paper for a more extensive discussion of these issues).

In terms of classroom effects, we found seven significant differences but five of these were confined to profiles 6 and 7 as would be expected. Of the remaining two, both are borderline findings, and can be excused as a chance statistical findings. Similarly, we found only two borderline significant differences for the classroom by competence interactions. Again we would expect more significant findings on the basis of chance alone. Thus, there is little evidence in the ESSP that the definition of competence in the Brookline Schools is classroom specific.

Finally, turning attention to the General Competence Rating Scale, we again find an extensive pattern of significant differences for competence factor. We find here, however, a significant pattern of classroom effects and classroom-by-competence interaction effects. This is particularly true for the social competence rating items. These results reflect the nature of the instrument - a rating scale consisting of a set of Likert scale items which was filled out by classroom teachers. Rating scales of this type are particularly problematic because of different reference frames across raters (in our case teachers and classrooms) both in terms of parameters of central tendency and variability. To improve the usefulness of this type of data significantly, we would have to resort to one of two approaches. One could attempt to standardize the rating procedure through a formal training program for the raters. Alternatively, we could adjust statistically the set of ratings by creating standardized (i.e. unit deviate) scores for each rater. Both approaches have their drawbacks.

Conclusions

In general, we found the pilot testing to be very useful. Both the data analysis, and the experience in administering these procedures were helpful. It is on the basis of both of these considerations that the following decisions have been made:

1) the Meeting Street Screening Test will not be incorporated into the test battery. The MSST was originally intended as a diagnostic tool to screen for learning disabled children (Hainsworth, et. al., 1968). Its validity across the middle and top of the scale, however is unknown. In addition, only a very limited norming sample is currently available. This greatly restricts its usefulness as an evaluation tool. Since its content overlaps extensively with the McCarthy, and since the McCarthy does not suffer from either of the above constraints, the McCarthy appears preferable.

2) the McCarthy Scales of Children's Abilities will be incorporated into the test battery. This decision is based on the data analysis and our general positive experiences in the administration of the procedure. Like the MSST it requires individual administration by a professional tester. It provides, however very detailed information in its index scores and subtest scores. It gives a general cognitive index, or a measure of I.Q, but is not limited to this as is the Stanford-Binet. In fact, based on our limited data set, the general cognitive index is not the strongest discriminator. Rather the perceptual performance index, which is a component of the general cognitive index, is the strongest predictor.

3) We will undertake an additional segment of pilot testing this spring before full implementation of the assessment plan. In this new pilot testing we will explore the following:

   a) the ESSP will be used again with an extensive reliability study. Special attention will be given to the possibility of eliminating or collapsing some categories. Other alternative observational instrument for observing social behavior will also be included in the pilot testing. A decision will be made on the basis of this pilot testing on whether to use the entire ESSP or only certain profiles such as the Mastery profiles 3 and 4, and the time allocation profile 5, in conjunction with an alternative social behavior observational instrument.

   b) a variety of rating scales will be included in this new pilot testing in an attempt to determine which ones provide the best information. The tentative list includes:

      the General Competence Rating Scale (Bronson, 1974), the Classroom Behavior Inventory (Schaefer, 1971) and items from the Preschool and Kindergarten Preformance Profile (Dinola, Kaminsky, and Sternfeld, 1970). This latter instrument is particularly interesting. Each item is competency based and the rating levels for each item form a Gutman scale.

This should result in some reduction in the bias and variability normally encountered with rating scales. Also, a training session is planned for all raters as another approach to alleviating these problems.

Figure 1

Variables Included in the 1974 BEEP Evaluation Pilot

I. Meeting Street Screening Test - three scales including:

Motor Patterning, Visual Perceptual Motor, and Language

II. McCarthy Scales of Children's Abilities - six indices including: Verbal, Perceptual Performance, Quantitative, General Cognitive, Memory, and Motor.

And twenty subtests: Block Building, Puzzle Solving, Pictorial Memory, Oral Vocabulary, Number Questions, Tapping Sequence, Verbal Memory I and II, Right, Left Orientation, Leg Coordination, Arm Coordination, Initiative Action, Draw a Design, Draw a Child, Numerical Memory 1 and 2, Verbal Fluency, Counting and Sorting, Opposite Analogies, and Concept Grouping.

III. The Executive and Social Skills Profile* - seven profiles: Social Control and Dominance Profile (9 items), Social Cooperation Profile (8 items), Task Attack Skills Profile (6 items), Mastery Motivation Profile (5 items), General Involvement Profile (9 items), Adult Interaction Profile (6 items), and Affect Profile (7 items).

IV. The General Competence Rating Scale* - three components: 11 task competence items, 14 social competence items, and 2 general competence ratings.

*The specific variables for III and IV are identified in data tables in figures 4, and 5 respectively.

Figure 2

MEETING STREET SCREENING TEST

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARE (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPET X CL
Motor Patterning	12.21	8.55	9.879	25.29***	13.57	2.09
Visual Perceptual Motor	14.38	10.11	12.057	25.65***	12.96	7.88
Language	13.39	10.47	10.098	16.53***	10.51	10.60

Significance Levels:

*$p \leq .05$

**$p \leq .01$

***$p \leq .001$

Figure 3

McCARTHY SCALES OF CHILDREN'S ABILITIES

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETE X CLA
Verbal Index	53.75	46.69	111.459	9.21*	16.98	9.62
Perceptual Performance Index	59.21	45.29	98.064	34.70***	5.98	4.81
Quantitative Index	56.16	49.29	85.521	21.25***	14.74	5.94
General Cognitive Index	112.24	92.43	270.801	26.15***	11.93	5.74
Memory Index	54.63	46.20	102.745	13.78	17.98	6.20
Motor Index	52.57	40.70	124.123	22.41	11.64	4.55
SUBTESTS:						
Block Building	9.93	9.64	0.369	6.07	6.40	6.19
Puzzle Solving	20.61	14.37	28.460	25.49***	5.44	11.07
Picture Memory	3.98	3.41	1.996	4.44	8.00	3.84
Oral Vocabulary	18.54	16.01	17.960	7.97*	15.94	6.56
Number Questions	6.18	4.67	2.030	21.81***	9.67	7.64
Tapping Sequence	4.95	3.93	2.362	9.17*	12.04	13.56
Verbal Memory 1	25.48	22.68	37.616	4.82	7.71	15.65
Verbal Mamory 2	7.30	6.06	6.221	5.25	17.51	10.43
Right Left Orientation	6.59	5.18	10.940	4.41	6.86	13.08
Leg Coordination	11.89	10.47	3.403	12.99**	11.99	7.16
Arm Coordination	9.66	8.49	15.805	2.00	11.72	13.86
Imitative Action	3.91	3.89	0.104	0.09	12.29	3.24
Draw Design	11.46	8.20	10.762	19.33***	13.42	6.23
Draw Child	13.09	10.39	8.721	16.61**	17.87	3.53

(Figure 3 Cont'd)

McCARTHY SCALES OF CHILDREN'S ABILITIES

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETE X CLA
Numerical Memory 1	7.36	6.80	3.325	2.23	13.46	7.97
Numerical Memory 2	3.30	1.60	2.577	21.47***	15.73	3.38
Verbal Fluency	17.90	16.24	16.819	3.81	10.16	13.64
Counting Sorting	8.44	7.32	1.927	11.95**	25.88**	4.96
Opposite Analogies	6.64	5.36	1.275	22.20***	12.11	11.80
Conceptual Grouping	9.98	8.74	3.455	7.84*	16.84	20.73

Significance Levels:

*$p \leq .05$

**$p \leq .01$

***$p \leq .001$

Figure 4

EXECUTIVE AND SOCIAL SKILLS PROFILES

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETENCE X CLASS
SOCIAL CONTROL AND DOMINANCE PROFILE						
1) Rate Successful Social Control of Peers	1.54	1.24	0.274	9.12	4.62	0.43
2) % Successful Social Control of Peers	0.75	0.54	0.015	44.33***	3.62	3.00
3) Rate Successful Resist Social Control	0.41	0.26	0.021	15.96**	21.49*	19.06*
4) % Successful Resist Social Control	0.97	0.76	0.012	48.82***	3.23	6.18
5) Rate Successful Competes Peers	-	-	-	-	-	-
6) % Successful Competes Peers	0.55	0.23	0.217	11.30	9.00	6.21
7) Rate Control by Peers	1.05	0.90	0.073	5.90	15.21	15.86
8) Rate Follows or Imitates Peer	0.09	0.10	0.004	1.45	13.30	13.26
9) Rate Asks Social Help	0.02	0.06	0.003	10.22*	15.68	26.75*

(Figure 4 Cont'd)

EXECUTIVE AND SOCIAL SKILLS PROFILES

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETE X CLA
SOCIAL COOPERATION PROFILE						
1) Rate of Cooperative Strategies	0.44	0.30	0.039	11.42	14.65	2.45
2) % Time in Cooperative Play	0.59	0.32	0.064	22.36**	7.74	7.52
3) % Social Control Verbal	0.92	0.87	0.007	7.22	4.96	9.14
4) % Time in Conversation	0.04	0.03	0.002	3.76	20.01	8.99
5) Rate Asserts Rights	0.04	0.02	0.001	16.00*	5.42	7.71
6) Rate Shows Sympathy or Empathy	-	-	-	-	-	-
7) Rate Shows Hostility	0.03	0.05	0.002	5.26	20.31	7.91
8) Rate Refuses to Accept Rules	-	-	-	-	-	-

(Figure 4 Cont'd)

EXECUTIVE AND SOCIAL SKILLS PROFILES

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETE X CLA
TASK ATTACK SKILLS PROFILE						
1) Rate Coping Strategies	.68	0.80	0.595	24.22**	9.59	8.75
2) % Task Completed Successful	0.96	0.72	0.026	35.70***	6.90	8.24
3) % Trial Completed Successful	0.82	0.65	0.032	19.87*	1.50	4.03
4) % Corrects Errors	0.75	0.44	0.132	17.10*	3.83	5.40
5) Rate Notices Novelty	0.04	0.02	0.001	5.27	15.82	2.00
6) Rate Dual Focus	0.11	0.12	0.011	0.81	17.58	2.66
MASTERY MOTIVATION PROFILE						
1) % Time in Mastery Task	0.55	0.49	0.015	6.08	10.57	5.19
2) Rate Pride in Mastery	0.03	0.05	0.004	1.14	9.88	8.30
3) % Ask Help in Mastery	0.06	0.06	0.004	0.08	6.60	21.96
4) % Time Distracted	0.02	0.11	0.007	25.50**	0.50	0.37
5) Average Time Per Mastery Task	5.00	4.58	2.61	1.78	20.97	0.42

(Figure 4 Cont'd)

EXECUTIVE AND SOCIAL SKILLS PROFILES

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETE X CLA
GENERAL INVOLVEMENT PROFILE						
1) % Time in Social Activities	0.50	0.49	0.024	0.24	16.23	0.28
2) Rate Social Acts in Social Time	3.50	3.61	0.572	0.44	26.45*	7.42
3) % Time in Co-operative Play	0.59	0.32	0.064	22.36**	7.74	7.52
4) % Time in Associative Play	0.33	0.56	0.049	19.81*	8.89	12.76
5) % Time in Parallel Play	0.88	0.12	0.015	3.45	3.60	7.78
6) % Time in Mastery	0.55	0.49	0.015	6.08	10.57	5.19
7) % Time in Fantasy	-	-	-	-	-	-
8) % Time in Gross Motor	.001	0.014	0.001	15.27*	7.51	4.12
9) % Time Not Involved	.002	0.014	0.001	10.68	12.80	16.17

(Figure 4 Cont'd)

EXECUTIVE AND SOCIAL SKILLS PROFILE

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARE (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPET X CL
ADULT INTERACTION PROFILE						
1) Rate Attempt Social Control of Adults	0.11	0.10	0.007	0.15	39.56**	16.7
2) % Social Control Adults Successful	0.42	0.63	0.115	8.43	14.23	6.04
3) Rate Resists Control by Adults	0.02	0.03	0.001	5.46	1.28	1.91
4) % Successful Resist Control Adults	0.62	0.60	0.256	0.04	17.17	1.91
5) Rate Controlled by Adults	0.14	0.15	0.005	0.10	32.53	13.7
6) Rate Interrupt Mastery Time	0.05	0.06	0.005	0.16	6.44	10.4

(Figure 4 Cont'd)

EXECUTIVE AND SOCIAL SKILLS PROFILE

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARE (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPET X CL
AFFECT PROFILE						
1) Rate Affection	-	-	-	-	-	-
2) Rate Hostility	0.03	0.05	0.002	5.26	20.31***	7.9
3) Rate Positive Affect in Social Time	0.22	0.19	0.014	0.48	66.26***	3.2
4) Rate Negative Affect in Social Time	0.02	0.02	0.001	0.04	4.63	7.1
5) Rate Positive Affect in Mastery Time	0.08	0.07	0.003	1.03	36.89***	13.4
6) Rate Negative Affect in Mastery Time	0.01	0.01	0.001	0.22	33.55***	1.0
7) Rate Pride in Mastery	0.03	0.05	0.004	1.14	9.88	8.3

Note: For items on which dashes have been inserted, an insufficient amount of behavior was observed in these categories to permit data analysis.

Significance Levels:

*$p \leq .05$

**$p \leq .01$

***$p \leq .001$

Figure 5

GENERAL COMPETENCE RATING SCALE

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETEN X CLAS
TASK COMPETENCE						
1) Works or plays well on his/her own	4.23	2.97	0.855	18.23**	34.86***	16.48*
2) Uses good strategies to sove problems	4.00	2.16	1.351	34.15***	13.33	10.27
3) Isn't distracted when doing a task	3.19	2.25	1.238	11.80*	19.26	18.45
4) Asks for needed help to do a task	3.38	3.21	1.578	0.46	10.22	12.06
5) Asks for unnecessary help	2.17	3.37	1.867	17.84*	3.85	7.30
6) Sees his/her errors and corrects them	3.79	1.88	0.795	45.21***	15.98*	8.44
7) Gives up before finished	3.79	2.06	1.757	28.37**	7.52	12.57
8) Returns to unfinished tasks	3.21	2.10	1.196	20.57*	10.22	8.26
9) Suceeds in tasks	3.85	2.43	0.904	33.67***	9.48	10.26
10) Enjoys tasks	4.35	3.46	1.373	12.04	22.89	1.37
11) Shows pride in what he/she makes	4.10	3.10	1.158	18.46*	12.46	4.10

(Figure 5 Cont'd)

GENERAL COMPETENCE RATING SCALE

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARE (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETE X CLA
SOCIAL COMPETENCE						
1) Uses words to control others	3.97	2.50	1.082	29.50***	21.94*	2.97
2) Uses physical force to control others	2.34	2.73	2.188	1.62	11.49	15.39
3) Succeeds in controlling	2.96	2.16	1.141	7.54	43.38***	7.53
4) Is controlled by others	2.19	3.35	1.307	18.50*	11.74	14.06
5) Imitates others	1.87	3.52	1.007	37.48***	9.97	9.50
6) Competes with others	3.33	3.15	1.559	0.50	15.72	12.26
7) Asserts his/ her rights	3.55	2.13	1.210	22.30**	26.35**	10.27
8) Accepts school rules	3.50	2.92	0.967	7.48	21.95*	4.89
9) Uses strategies	3.49	2.72	0.961	10.16*	33.47**	5.06
10) Shows verbal affection	3.29	2.61	1.067	7.79	16.02	21.19
11) Shows physical affection	3.06	2.79	0.949	1.42	14.87	26.84
12) Shows verbal hostility	2.83	2.18	1.528	5.81	19.36	11.55

(Figure 5 Cont'd)

GENERAL COMPETENCE RATING SCALE

VARIABLE DESCRIPTION	MEAN HIGH COMPETENCE	MEAN LOW COMPETENCE	MEAN SQUARE ERROR	% OF TOTAL SUM OF SQUARES (SIGNIFICANCE LEVEL) COMPETENCE	CLASS	COMPETENCE X CLASS
SOCIAL COMPETENCE						
13) Shows physical hostility	2.40	2.26	1.522	0.28	24.37	9.06
14) Enjoys social interaction	3.63	3.20	1.180	3.37	22.05	6.49
General Task Competence	4.30	1.69	0.714	62.20***	5.32	12.30*
General Social Competence	3.60	2.00	1.241	32.27***	5.07	14.32

Figure 6

SUMMARY OF POSSIBLE CEILING EFFECTS ON THE McCARTHY SCALES OF CHILDREN'S ABILITIES

SUBTEST	% OF CHILDREN WITH MAXIMUM SCOR
Block Building	85%
Leg Coordination	31%
Imitative Action	90%
Counting and Sorting	57%

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